

Chapter 9

DARK MANOEUVRES

Digitally Reincorporating the Marginalised Body in the Museum



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Introduction: Difficult Heritage in the Museum

Difficult heritage is a concept that only began to appear in museological discourse a decade after the first literature was published on the topic in the fields of cultural studies, critical heritage and anthropology (Logan and Reeves 2009; Macdonald 2009; Lehrer, Milton and Patterson 2011). The notion that heritage production itself might be difficult initially surfaced in the 1990s as part of wide-ranging critiques of historical interpretation and heritage practices as well as sociological, ethical and human rights questions about postcolonial and post-conflict societies (Giblin 2015). Prior to this, Tunbridge and Ashworth (1996), introduced the term ‘dissonant heritage’ to define how heritage might simultaneously create and contend with historical conflict, while Pitt and Britzman (2003) proposed that ‘difficult knowledge’ could offer new approaches to the pedagogy of trauma. The politics of heritage (Smith 2006, 2011) emerged as a novel concern following the 2003 ratification of the UNESCO Convention for the Safeguarding of the Intangible Heritage, alongside scepticism that this framework was being used to authorise new forms of nationalism and repression of extramarginal cultures (Aykan 2014).

Alivizatou (2006: 47) states that intangible cultural heritage (ICH) has an ‘unconventional relationship’ with museums. As the most visible and imposing purveyors of public history, however, museums share the propensity of ICH toward ‘metacultural production’, which reiterates prevailing cultural or domi-

nant nation-state narratives (Kirshenblatt-Gimblett 2004: 61). In recent years, collecting institutions worldwide, including state archives, public galleries and libraries, have faced increasing demands for more inclusive, accessible and community-oriented or engaged civic structures (Bennett 2006; Schorch 2009; Zavala et al. 2017). Attention to problems of cultural colonialism, appropriation and exploitation, or ‘dark tourism’, in museums and at heritage sites has underpinned parallel critiques across public history, heritage, tourism, human rights, social justice and memory studies scholarship (Bennett 2004, 2018; Lennon and Foley 2000; Luke 2003; Sandell 2002, 2016).

Meanwhile, working outside official state channels, artists and activists such as Brook Andrew (Australia), Theaster Gates (United States), Doris Salcedo (Colombia) and Ai Weiwei (China) have, each in their own way, anthropologically excavated and exposed ongoing exclusion in museums of people due to racial or political discrimination, systemic erasure or oversight. The term ‘difficult’ may, as such, refer to an array of socio-political issues and heritage practices. Nonetheless, ensuring that heritage production does not reiterate past injustices for marginalised communities remains an enormous challenge for many societies and museums (Bennett 2018; Djuric, Hibberd and Steele 2018; Sandell 2016).

Although museums have begun to embrace and include more diverse audiences, a gap remains when it comes to ‘difficult’ bodies – which we contend entails bodies attached to specific individuals or communities for whom exclusion persists, either based on stereotypes of stigma about their bodies or due to marginalised corporeal practices. Two dimensions of the body are implicated here: first, the physical or living being that actively faces hardship due to stigma and the direct effects of systemic discrimination (e.g. against different cognitive, psychological or physical abilities, against minority groups and people of colour, or on the grounds of non-heterosexual orientation or non-binary gender identity); second, the embodied dimension of lived experience in which the body is a vessel or repertoire of knowledge that is vulnerable to being lost as a result of the displacement, disconnection or cultural oppression of socially transmitted practices (e.g. religious or ritual performance, a First Nations or minority cultural group and its customs).

Recent research in performance studies has promoted the concept of ‘embodied historiography’ to theorise forms of re-enactment and performative practice that enable the restoration, recollection and retelling of tacit knowledge (Johnson 2015). Other important performative work with trauma survivors has sought to engage and empower the body as a living document and form of testimony, as a repertoire through which otherwise inaccessible (repressed) knowledge can be unlocked (Branch and Hughes 2014; Hibberd 2014).

The vitality of performative archives as living repertoires of memory (Bal 2001; Bal, Crewe and Spitzer 1998; Taylor 2003; Trezise 2014) has also been advanced as a means of resistance to forms of oppression and normative or systemic

violence (Butler 1999). In the museological domain, however, performance and performed practices are rarely regarded as an authentic means of historical account. The refusal to accept physical acts or corporeal reconstructions of the past as a legitimate heritage method means that many experiences (that cannot be conveyed otherwise) have no representation in museums, thus reinforcing their marginalisation. Arising from re-performed repertoires of memory (Taylor 2003, 2016), the notion of re-enacting the past importantly intersects with studies of embodied cognition that are fundamental to both immersive and interactive design (Kirsch 2013) – research that is central to the emergent domain we intend to delineate in this chapter, that of digital embodied historiography.

Bringing Difficult Bodies into the New Museum

Museums have been increasingly tasked to engage their public, not only through internal organisation, outlook and public appearance but also within the very fabric of the museum, by reinventing museum design and modalities of display and improving access to often vast and sometimes impenetrable holdings. New museology, which centres on the theorisation of museums as public-facing institutions (Hooper-Greenhill 1994; Vergo 1989), has been a central part of a wider transformation over the past two decades of the political and social landscape of heritage through critical approaches to exhibition and collection practice (Shelton 2013), as well as architectural design of museums and object displays (Gunn, Otto and Smith 2013).

What is additionally evident in the nascent turn in museums towards greater public or civic engagement is the orientation to the body (e.g. curatorial design that leads visitors on pathways, human-scale models, immersive video and sound installations, interactive touch or mobile screen interfaces). Yet this re-emphasis has introduced contradictions. While the new museum model permits different, more sensory entry points through more tactile and tacit encounters (Howes 2014; Falk and Dierking 2008; Kenderdine 2016), reconnecting collections to visitors' bodies has sometimes inadvertently opened artefacts to people who have not previously been acknowledged or given a place in the museum. For example, the 3D modelling of a First Nations tool or object never before displayed could prompt specific performative memories in its custodian community, who had not been previously given access, and to whom the object should be repatriated. Moreover, the interactive animation of archives connected to tacit knowledge is becoming increasingly prevalent in museums, but little attention is generally paid to the potentially negative or even traumatic impact of these developments on difficult bodies – on those for whom troubling memories are embedded in objects, or who find themselves misrepresented or altogether absent in the museum.

Critics of ICH have identified a similar gap, which they argue forms part of a neo-colonial, globalised heritage paradigm that promotes only those narratives that support authorised national accounts and political agendas – even narratives appearing under the auspices of human rights or social justice are susceptible to this paradoxical tendency (Collins 2011; Jacobs 2016; Munjeri 2004). Ultimately, although advances in digital museology would appear to be making museums more open and accessible, technological developments have been frequently overlaid on a flawed museological and epistemic foundation (Smith 2006).

Towards a Digital Embodied Historiography

In this chapter, we will focus on one overlooked aspect of this critique, specifically what the sensory possibilities of emergent immersive and engaged digital interfaces offer otherwise marginal embodied experiences. This gap will be examined both in terms of appropriate documentation as well as how the corporeal can be digitally reconfigured in museological contexts for distinct social, cultural and lived experiences. Our analysis will take place through the dual framework of digital cultural heritage and sensory museology (Cameron and Kenderdine 2007; Howes 2014) based on three recent projects – *Travelling Kungkarangkalpa*, *Parragirls Past, Present*, and the *Hong Kong Martial Arts Living Archive* – each developed in collaboration with respective local communities that have contended with marginalisation.

This examination will entail, first of all, an overview of the new forms of narrative immersive technology that support marginalised embodied knowledge. Secondly, we will explore the affordances of new interfaces that have been developed for the transmission of encoded embodied knowledge repertoires. Thirdly, to conclude, we will outline some of the new ground being broken for digital embodied historiography that might enable museums to create greater scope for the inclusion of difficult bodies and communities through these technologies in the future.

In this first section of our chapter, we discuss two major immersive media projects – *Travelling Kungkarangkalpa* and *Parragirls Past, Present* – in order to analyse some of the new immersive technologies being inaugurated to document, transcode and restage the unique temporalities and narratives of marginalised and difficult experiences that centre on the body.

New Narratives for Expansive Temporalities and Sacred Bodies: *Travelling Kungkarangkalpa*

Travelling Kungkarangkalpa is a two-part full-dome experience that was created in 2017 for the National Museum of Australia exhibition *Songlines: Tracking the*

Seven Sisters.¹ As an immersive dome-based or spherical video projection environment, similar to those seen in planetariums this immersive media work presents a First Nations narrative that spans Australia. In one of the oldest stories told on the continent, seven sisters are chased by Wati Nyiru or Yurlu, an evil spirit whose sexual pursuit drives the sisters eastward. Finally, they take flight into the night sky, and the sisters transform into the Pleiades star cluster. The second of the two immersive experiences created for *Travelling Kungkarangkalpa*, titled *Walinynga (Cave Hill) Experience*, provides particular insight into the challenge of bringing marginalised bodies into the museum. In this instance, restaging experiences of a physical site is difficult due to the sacred nature of the Aboriginal knowledge attached to it, knowledge that custodians must transmit in order to preserve while maintaining the secrecy of some aspects. It is not only an old story that is at stake in this situation but also *Tjukurpa*. Often simply translated as ‘dreaming’, *Tjukurpa* is both law and religion, as well as an entire epistemological and phenomenological system of knowing and being through the senses. Located in the remote Anangu, Pitjantjatjara and Yankunytjatjara (APY) lands of South Australia, Walinynga is the most extensive Australian rock art site to represent the Seven Sisters *Tjukurpa*, with the earliest paintings estimated to be thirty-four hundred years old (National Gallery of Australia n.d.).

Communities in this region also retain vivid memories of colonial violence: the forced removal of children under Stolen Generations policies (HREOC

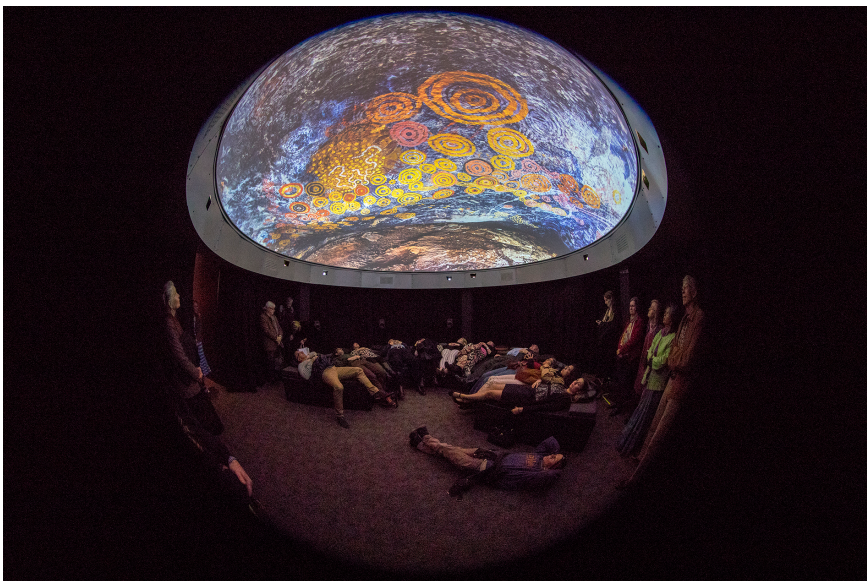


FIGURE 9.1. *Walinynga (Cave Hill) Experience, Travelling Kungkarangkalpa* installed in DomeLab for *Songlines: Tracking the Seven Sisters*, National Museum of Australia, 2017. Image by Sarah Kenderdine.

1997), British nuclear testing at Maralinga between 1956 and 1963 and the subsequent displacement of many of their people from the country (see Broinowski 2003). Yet another threat has loomed over this place: the absence of vessels for future memory due to dispossession and a lack of younger generations living on the land. These dangers led the Anangu elders to request the assistance of the National Museum and Australian National University to help them make a record of the cave. Moreover, according to the National Gallery's Songlines website (n.d.: n.p.), the community hoped this work might support 'a bid to gain protection as a national heritage site'.

The most profound aspects of Walinynga are embedded in practices based on ancient knowledge systems that require a wholly new approach. First and foremost, pictorial representations in Australian First Nations practices are not static or linear. As Nicholls (2017: n.p.) points out, 'Aboriginal art was the original and first form of "performance art", comprising visual art, dance, music and song, narrative and poetry'. The cave at Walinynga is thus experienced as part of a 'performing' multitude of temporalities, places, memories and dimensions. The cave provides the locus for a fully embodied, environmental narrative that folds tens of thousands of past stories into a narration that continuously evolves. If any Western conceptual rendition can approximate this phenomenon, it would be Deleuze and Guattari's *A Thousand Plateaus* (1987), which reconceives space and time as expansive, pluridimensional and rhizomatic – providing nonhierarchical entry (and exit) points to knowledge.

The vision of APY elders was crucial to the project. Their extended consultation with National Museum of Australia curators along with heritage consultants and a team of immersive visualisation specialists, led by Sarah Kenderdine, resulted in a full-dome work that heralds a new relationship between Australian First Nations peoples and public institutions. Nonetheless, translating thirty-four thousand years of Walinynga cultural heritage into a seven-minute experience involved finding new architectural and narrative forms for such vast and tacit knowledge.

First of all, Walinynga cave exists within a continuum of dome constructions, which throughout human history have been created as places of ritual, communion and transcendence. As found in Buddhist stupas, Jain temples, Islamic mosques and Christian cathedrals, arched enclosures have provided the ideal form for 'psycho-cosmological constructs' (McConville 2007: 1). Knowing that the Walinynga paintings were made to be seen by the light and liveness of fire supports the case for ancient caves as some of the earliest examples of embodied immersion (Lambert 2012). Designed to create a powerful sense of presence, or of 'being there' (Heeter 1992), Kenderdine's DomeLab is a modern multisensory sanctuary that shares common traits with its cave art predecessor. For instance, DomeLab's omnidirectional immersive environment was conceived to enhance cognitive engagement in a hemispheric gestalt (Kenderdine 2017, 2018; Kender-

dine, Shaw and Gremmler 2012). Furthermore, because expanded spatio-temporalities are inherent to DomeLab's immersive architecture, it provides the ideal prosthetic architecture for the *Walinynga (Cave Hill) Experience* and its Anangu cosmologies and worldviews. As in the real Walinynga cave, our supine position under the dome allows us to focus on the vault enveloping our field of view. Being in this prone position, unusual in a public space, makes it easy to succumb to being transported into the remote desert and deep time of the Anangu Seven Sisters *Tjukurpa* (Kenderdine 2017).

Secondly, Walinynga's deeply embodied time required the novel amalgamation of a range of immersive strategies, including photogrammetric photography of the cave for a 3D model, allowing 3D animation for the full-dome visualisation, in combination with astrophotographic time-lapse sequences, 4k fisheye and panoramic imagery and aerial drone footage of the desert environment, in addition to ambisonic (spatialised) sound recordings. These different immersive forms coalesce within DomeLab to open the senses to a range of powerful simulacra that collectively emulate the real-life experience of Walinynga cave. The omnidirectional interactive DomeLab environment further enhances the cognitive exploration of the cave's unique attributes through patterns and layers of perception (Kenderdine, Shaw and Gremmler 2012), creating a sense of presence within the deep time of *Tjukurpa* and a 'knowledge system developed over 2000 generations that governs Aboriginal life' (Eccles 2018: n.p.).

In the *Walinynga (Cave Hill) Experience* Anangu elders allow us to lay down in the reconstructed cave just as their ancestors have done for many thousands of years, marking an extraordinary new form of museology in which the knowledge of the Seven Sisters *Tjukurpa* is passed on through the bodies of museum visitors. Allowing future generations to reimagine access to Walinynga through a virtual platform not only provides a means of transmitting past knowledge into the present but also offers scope for new ways to engage future generations to teach this knowledge and tell these stories through the body. The work, nonetheless, represents some of the contradictions facing the digitisation of First Nations' cultural heritage: to open up the cave is to open up bodies to the world, which in Australian Aboriginal lore and custom often contains sacred knowledge that needs to be kept secret. What this project means for the preservation of Walinynga *Tjukurpa* remains to be seen.

Parragirls Past, Present: Narrative Embodied Recollection through Immersive Technologies

The immersive film *Parragirls Past, Present: Unlocking Memories of Institutional 'Care'* (2017) pioneers a new approach to the mediated communication of trauma testimony as it represents childhood memories of past abuse suffered in a gov-

ernment welfare institution (further described in chapter 6 of this volume). In early 2016, five Parragirls – Bonney Djuric, Gypsie Hayes, Jenny McNally, Tony Nicholas and Lynne Paskovski – came together at Parramatta Girls Home to co-create this film with long-term collaborator Lily Hibberd and media artists Volker Kuchelmeister and Alex Davies.

Comparable to *Walinynga (Cave Hill) Experience*, the creation of *Parragirls Past, Present* was the result of long and committed cooperation with this marginalised community. Specifically, this involved more than seven years of ground-work and collaboration with Parragirls – a highly traumatised and dispersed group of people, whose memories have been buried under shame and public denial (as chronicled in Hibberd and Djuric 2019). All five collaborating Parragirls were involved in the major Australian judicial inquiry into child sexual abuse at the Parramatta Girls Home (Australian Government 2014). And the film was made in response to this process, particularly the adversity of renewed disclosure of childhood sexual abuse, as former residents were drawn into a legal and public exposition that regarded them as mere victims. Parragirl Lynne Paskovski refers to the effect of this process when she remarks in the first moments of the film: ‘We walked out the gate fifty years ago and never thought anything more of it. You try to put it behind you, and then all of a sudden you have to start to remember things and that Pandora’s Box is opened.’ Few alternatives existed for Parragirls to author their own account of these experiences, apart from judicial transcripts or sensationalising news media. *Parragirls Past, Present* was created as a counterpoint designed to communicate physical, emotional and narrative experiences from their own perspective.

Moreover, in contrast to the state, media, heritage experts and historians, past occupants of Parramatta Girls Home had been powerless to create visual or textual records of their childhood. *Parragirls Past, Present* provided the means to convey the aftermath of abuse in direct contact with the site and to record an account of the effect of this on their lives, minds and bodies. What began to emerge over many months was a novel process of documentation through tacit, sensory and corporeal acts, or embodied historiography, which has been argued as a legitimate form of knowledge production (see Spatz 2015).

Beginning in 2012, when Parragirls first began working together on site as part of the memory project (see chapter 6 in this volume), they faced a disconnection or discord of the past and present that was distinctly located in their bodies – where the link to past abuse and trauma remained embedded. Retracing memory through the body involved firstly walking and describing memories of the girls home, but this rapidly evolved into re-enacting or re-situating themselves in significant spaces. Our collective concern was not the therapeutic aspects of these embodied performative acts, even though it seemed to be crucial for each person to undertake. There was a more fundamental impetus: to demonstrate that what they remembered was true because no one had ever believed it before. This trait

defines the key difference between re-enactment for popular entertainment (i.e. war games) and that which sustains or restores embodied memory.

For Parragirls, the crux of the problem has been that the site cannot be divorced from their (abused) bodies. In legal and real terms, the possession and control of childhood bodies was total under the auspices of the state welfare department, lawyers and courts, the police, doctors (forced virginity testing), welfare officers, wardens (surveillance, deprivation, and physical, emotional and sexual abuse), priests (forced removal of children) and psychiatrists (psychotropic medication). As such, the most important issue for Parragirls has always been control: the power of others to determine how and when your body is seen, how it moves and what it looks like.

When the process of developing the script and concepts for *Parragirls Past, Present* began, the co-creators were already aware of the power of such corporeal testimony. A number of first-person-perspective artworks had been created using hand-held video (walking the site), as well as live art projects, such as the 2016 re-enactment performance *It's Time for Transparency* by Jenny McNally (see Hibberd and Djuric 2019). But it was the introduction of new tools and techniques of immersive digital documentation – using computational strategies – that enabled us to reorient the lens of embodied historiography away from the demonstrative performance of memory to the understanding that transmission might occur through being present in the place of witnessing with survivors. This insight allowed Parragirls to access a range of narratives and memories that would not otherwise have been available, some of which are described below.

Whereas in previous performative documentation Parragirls had used microphones and hand-held video cameras, in the first few months of filming for *Parragirls Past, Present*, the participants trialled a number of new ways to source material. One of these was a device called SenseCam, a small fisheye lens camera harnessed to the wearer that takes pictures based on sensory triggers (i.e. light, movement). The photos can be geolocated and eventually positioned in a reconstructed 3D spatial setting, mapped according to their original geographic coordinates. These images are known to function very well as memory cues, as they mirror cognitive aspects of embodied human memory. The idea was to include the resulting photographs as overlays in the 3D environment, representing Parragirls' subjective first-person and embodied memories. Bonney Djuric and Jenny McNally completed a number of walks on this basis; however, the quality of the images was poor, and they would have distracted from the powerful presence of the site itself that was taking shape as a 3D model (see chapter 6), which was intermittently shown to Parragirls as it progressed.

In one particularly fascinating viewing, Bonney Djuric and Jenny McNally observed that the virtual reality headset seemed to emulate their own brains, being akin to their sense of being swallowed up in an intensely illusory and sealed-off simulation of the real world – a comment that provided a new direction for

the design of the work. The coevolution of immersive technology and perception has been extensively theorised, but this last lucid observation harkens to Jonathan Crary's notion of 'physiological optics' (1990: 16). Parragirls' insights revealed that there was something innate in virtual reality that could be exploited to learn about the expression of trauma through the mind and body, which Schroeter (2014: 131) describes as becoming 'acutely aware of the spatiality' of your own body through immersion in 3D images, in contrast to the being in the original physical space.

The impact of confronting memories of abuse in revisiting real spaces, for instance, had distinct impacts, including moments of confusion, blankness and dissociation. These nonlinear effects led to many debates about how bodies could act as a conduit for past memories in the present. Some of the most difficult scenes to realise were those that took place in the solitary cells, of which there were originally three at Parramatta Girls Home. Gypsy Hayes recounts being in the cell called 'Segregation': 'Yeah, Segregation. I spent nearly a month up there actually because that screw had given me such a flogging that he split my lip open. Both my eyes were blackened. I had bruises on me face. I had bruises over me body. Half me hair was pulled out.' For others it was impossible to re-enter these solitary confinement spaces, and because of this we had to consider whether they should be included in the film at all.

But then, during another session, Volker Kuchelmeister showed Jenny an extract of footage of the basement cell – a short clip that was also very dark. While



FIGURE 9.2. *Parragirls Past, Present: Unlocking Memories of Institutional 'Care'*, 2017. Still from immersive 3D 360-degree film, 23 minutes. Created by Volker Kuchelmeister, Alex Davies and Lily Hibberd, with (Parragirls) Bonney Djuric, Gypsy Hayes, Jenny McNally, Tony Nicholas and Lynne Paskovski. Image courtesy of the artists.

the screening affected her immensely, Jenny explained how it might be possible to make the representation of the space tolerable for victims by relying on testimony to convey what happened there to others instead of photographically depicting it. This led to a brief basement scene being included in the film that was quickly occluded so that we are left with only Gypsie's voiceover: 'It was just a cold place, a dark place . . .'

Further, as Parragirls specifically shaped the narrative of the work, they validated memories of abuse by using the immersive film to displace embodied experiences of Parramatta Girls Home, including punishments, isolation and the awareness of being under surveillance (see Hibberd 2014). Many hours of discussion with cowriters and narrators Bonney Djuric and Jenny McNally crucially provided discernment of the limits of recreating or simulating vicarious embodied experiences of childhood sexual and physical abuse in virtual reality and informed the decision to position spectators alongside Parragirls in the 3D realm.

Sound was also effectively employed to convey our co-presence with Parragirls. Recordings were made on site and in a nearby studio using binaural, spatialised audio to evocatively situate their voices right beside us. The power of sound to trigger sensory memory was another significant focus during the creation of the film. As Parragirls made running lists of sounds to include, their consistently active and physiological nature was obvious. In order to replicate the present moment, the resonant dynamic acoustics were adopted to conjure the effect of corporeal presence, whether human or otherwise. Adding field recordings taken at Parramatta, such as murmuring voices, shuffling feet, rustling leaves, trees in wind and bats passing by, we found that these roused tactile acoustic traces of memory (see Hall 2010: 84–85).

Finally, as mentioned above, the effect that Parragirls described, of being divorced from their bodies (a post-traumatic effect known as dissociation), became a central feature in the film. This sensation is inherent to our corporeal suspension in the points of light scattered through the infinite darkness of the 3D field, in which we seemingly become weightless or ethereal, passing through walls and soaring above the site at the very end. Ultimately, *Parragirls Past, Present* is an experiment in the reconstruction of embodied trauma in immersive media and how virtual reality can be used to navigate the ethically and emotionally fraught territory of the traumatic experience of others.

New Digital Interfaces and Affordances for Marginalised Embodied Knowledge

When immersive interfaces are centred on marginalised or stigmatised bodies, a whole new relationship to optical conventions and representational dynamics is required. Technologies of corporeality have radically altered how we see our-

selves, and the primary interface for these encounters are screens. It was only twenty years ago that these displays were thought of as static entities, fixed portals through which an external reality or world arrived, either on our television or on movie screens. Since the advent of mobile phones followed by tablets, the sense of the screen as a moving window (Verhoeff 2012) has proliferated in public imagination, whereby today we sense that we can travel with our screens – as Friedberg (2006: 3) envisaged, ‘mobile virtuality’.

This mobility has now been combined with immersive extrapolations of stereoscopic virtual reality and other optical schema, which have shifted how we perceive seeing from the fixed frame of the cinema as part of a radical redefinition the ‘scopic regimes’ of modernity (Jay 1988). And yet the attributes of truly immersive screens mobilise participants in affective ways through strategies of interaction, demanding kinaesthetic and bodily intervention, all of which requires new critical evaluation of the limits of spectatorship, agency and the perceived temporality of real time in museums (Harris 2012). The three examples we have chosen here from a martial arts heritage project convey some of the distinct possibilities of novel embodied relationships with digital interfaces as affordances for difficult heritage.

Novel Interfaces and Avatars for Marginalised Embodied Acts: Hong Kong Martial Arts Living Archive

The Hong Kong Martial Arts Living Archive (HKMALA), instigated in 2012, is an ongoing research collaboration between the International Guoshu Association, City University of Hong Kong, and the Laboratory for Experimental Museology (eM+) at EPFL. This archival project was established to address the decline of Southern Chinese kung fu in mainland China, where a significant portion of traditional martial arts has already vanished due to its oppression since the Chinese Cultural Revolution in 1969 (Chao et al. 2018). Despite the contemporary Chinese Communist Party’s burgeoning interest in authorising global narratives of intangible cultural heritage (i.e. UNESCO), the current reconceptualisation of heritage, as Evans and Rowlands argue (2015), predominantly features shifting power relations rather than a real desire to reanimate martial arts communities.

Kung fu practitioners’ tacit knowledge is a particularly difficult form of heritage in two regards. First, it must be performed in order to exist. Learning kung fu involves a person-to-person exchange and imitation of movements between an expert and a novice (Chan et al. 2011; Komura et al. 2006). While Hong Kong remains an active centre for elite practitioners, home to some of the most prominent martial artists in the world, the aging of these masters alongside rapid urban development, population growth and cultural transformation endanger



FIGURE 9.3. One side of the six-sided Re-Actor system, showing a motion-captured kung fu performer in 3D. Created by Sarah Kenderdine and Jeffrey Shaw, 2016. Image by Tang Ming Tung. Courtesy of Sarah Kenderdine.

the transmission of these practices to future generations, due to the lack of any method of transmission other than in person. Second, this tacit knowledge is all the more difficult because of the contested politics surrounding contemporary Chinese heritage, which allows for the paradox of its continued oppression in China in tandem with a Western perspective that suspects the revival of Chinese intangible cultural heritage as being a tool of Communist Party propaganda.

In recent years, digital interfaces, including virtual reality high-fidelity 2D motion data and ultra-high-speed and green-screen video, have been harnessed to augment or initiate the computational transmission of embodied traditions in the form of encoded acts. The benefits of these innovations for the transmission of corporeal customs have been recognised by scholars such as Salazar Sutil (2015: 122), who contends that mobile and smart technologies have brought about a 'deep and democratic' change in the 'recording and representation of movement'. The question of how to translate embodied knowledge and encode motion with meaning so it might migrate from expert to novice without a master is central to the HKMALA project (Kenderdine and Shaw 2017). The martial arts reconstruction it has undertaken uniquely combines historical materials with creative visualisations derived from advanced documentation processes for physical movement, including motion capture, motion-over-time analytics, 3D reconstruction, panoramic video and animation. The archive currently contains nineteen styles

by thirty-three elite practitioners and is composed of 130 motion-capture datasets of *taolu*, which are prearranged movement sequences used for practising and performing traditional martial arts. Initially created as mnemonic aids for students, *taolu* are considered the primary text for Chinese martial arts, whereby learning consists of memorising these through imitation and repetition. For the first time in history, motion capture has supported the precise recording of these *taolu* in three dimensions, forming the largest motion-data archive of its kind in the world.²

Multimodal participation is a core knowledge transmission method harnessed in the HKMALA *Pose Matching* installation, presented in the ArtLab exhibition *Kung Fu Motion* in 2018. It deploys gaming technologies to support a novel pairing of the participant-actor with the screen. Standing in front of a human-scaled projection screen, the actor is tracked using sensors that capture movement and physical position in order to match these with a video sequence of poses presented on the screen, originally performed by a kung fu master. As the participant configures their body to replicate these poses, a corporeal conjunction is created in which the somatic memory of the kung fu master is imprinted on the viewer's body.

Importantly for the museological orientation towards the body, this pose-matching installation elicits the production of tacit artefacts in a generative process that has significant promise for pedagogical as well as archival methodologies. Trninic and Abrahamson (2012: 283), for example, describe the crucial capacity of 'novel motion-sensitive cyber-technologies to both craft and leverage embodied artefacts as a means of fostering learning'. Lindgren and Johnson-Glenberg (2013) have also undertaken research into embodied learning, supporting the case for virtual and mixed reality technologies as a new way of transmitting embodied knowledge to future generations. Furthermore, interaction with the screen acts as a simulacrum for the teacher's body, providing a new vehicle for museums to embark on the transmission of such heritage at risk.

Another original use of computational approaches for embodied transaction is the *Digital Reconstruction of Lam Sai Wing* (2018). So far only exhibited as a video, the larger work is an animated repertoire of moves from the kung fu manual of Lam Sai Wing, a master practitioner of South Chinese traditions in Hong Kong. This virtual reconstruction builds on techniques used in Hollywood movie and game industries for the manufacture of 3D human avatars. HKMALA first applied the method to recreate the performance of Lam Sai Wing's iron wire boxing. In this latest instance, however, another sequence was recorded based on the motion capture of contemporary re-enactments performed by his descendant, Oscar Lam. In yet another uncanny convergence, old photographic portraits of Lam Sai Wing are mapped onto the animated 3D model. The outcome concurrently reanimates the appearance and the embodied acts of Lam Sai Wing through Oscar Lam's body, the fourth-generation carrier of the Lam family hung kuen style.



FIGURE 9.4. Digital reconstruction of Lam Sai Wing, 2018. Composite digital image created by Sarah Kenderdine for HKMALA. Image courtesy of Sarah Kenderdine.

In providing both the repertoire and the tools of transmission, *Hong Kong Martial Arts Living Archive* is a prosthesis for the intergenerational continuity of kung fu embodied knowledge in the absence of masters (Kenderdine and Shaw 2016). Future digital strategies arising from this project will help to codify even more complex tacit aspects of its archive for ephemeral registers that only a body can convey (see Spatz 2015).

Conclusion: A Digital Embodied Historiography for Difficult Bodies in Museums

As the public is offered more active roles in the interpretation of heritage in the museum (Giaccardi and Palen 2008), we are reminded that reconstructing heritage is not only about mimesis or authentic high-fidelity replication. The greatest challenge is to open up museums to include difficult bodies.

Although the knowledge embedded in the painted surface of the Walinynga cave does not require the ritual re-enactment of sets of physical movement, such as in kung fu, there is a specific embodied relationship with the place itself. Crawling under the low-hanging rock, away from the vast and searing blue skies of the desert, the body gradually adjusts to this naturally relaxed prone position, which is familiar to sleeping, or camping in the desert, or gazing up at the sky – embodied memories that amplify receptivity. In the *Walinynga (Cave Hill) Experience*, the mutual threat to material and living history resulted in a radical shift in heritage thinking for the Anangu community. The work signals the possibility of virtual place-making with bodies as the locus of a vital future in which museums could host cross-cultural encounters (Witcomb 2015).

Meanwhile, as subjects of systemic national forgetting, Parragirls have faced enormous challenges in terms of the preservation of their heritage. This is because difficult heritage in Australia, as in many other postcolonial societies, is a subject that is either carefully contained or avoided through erasure and denial. The limitations, moreover, of using conventional heritage approaches for a museology of Parramatta Girls Home overlooks the fact that abuse is memorialised in survivors' bodies. *Parragirls Past, Present* demonstrates that it is, however, the people who experienced injustice that are able to construct a bridge to the past through the innovative use of immersive media that makes tacit experiences of trauma both visceral and meaningful to others.

For the Anangu in the *Walinynga (Cave Hill) Experience* and for Parragirls in their film, the question of how to structure the reincorporation of their embodied heritage for a museological context was not easy. It entailed reimagining and reinventing the aesthetics and politics implicated in allowing others to immerse their bodies in a sensitive and long-guarded cultural heritage experience. These two works, however, each resulted in a radical reorientation of the spectator's interaction with the digital interface and with the spectacle of simulated tacit experiences.

Similarly, the sophisticated repertoire of the *Hong Kong Martial Arts Living Archive* has required not only suitable memory banks but also new computational approaches and interfaces for their embodied transmission. Supporting the future living history of the archive has resulted in new interactive platforms, which in turn offer the museological domain promising new paradigms for future embodied memory pedagogy and historiography. The archive was also founded with a larger vision in mind: to make feasible museological representations that overcome both the Chinese and the global perception of traditional performed cultural practices as historical (and thus redundant) rather than as alive in the present (Shaw, Kenderdine and Chao 2017).

Since theorist Sharon Macdonald first harkened a 'turn to difficult heritage' (2008; 2016: 14), finding new ways to represent experiences held in the body has become even more crucial for museums. Certain aspects of bodies, moreover, remain marginalised precisely because tacit experiences are rooted in senses and emotions that lack suitable forms and do not fit existing museological paradigms. This challenge is not insurmountable, however. With the engagement of communities of marginalised memory in generating new approaches to digital practice and technological forms of embodied historiography, a whole new era of museology that embraces difficult heritage is on the horizon.

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Notes

1. *Travelling Kungkarangkalpa*, 2017, was produced and directed by Sarah Kenderdine, codirected by Peter Morse, and created with Chris Henderson, Cédric Maridet, Paul Bourke and Brad May. The Cave Hill Project is a joint initiative of APY, the Cave Hill Custodians, National Museum of Australia, and the Australian National University.
2. The project has thus far resulted in eight international exhibitions, including *Kung Fu Motion* at EPFL's ArtLab (2018) and Melbourne Immigration Museum (2017), and *300 Years of Hakka Kung Fu* (2016) at the Heritage Museum and CityU Galleries in Hong Kong, China (see Shaw, Kenderdine and Chao 2017; Kenderdine and Shaw 2017, 2018).

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